

EACTB R4.6 – Fire Prevention and SAE A-22 subgroups F and G

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**Federal Aviation
Administration**

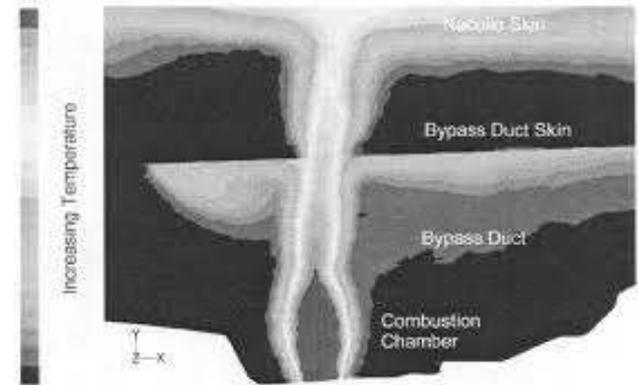
EACWG/EACTB background information

- **EACWG (Engine Aircraft Certification Working Group)**
 - Joint effort launched between FAA and EASA launched in May 2016 to identify regulatory gaps and disharmonies between engine certification and aircraft (especially part 25/CS 25 aircraft) which have been creating certification challenges when engines are installed on such aircraft.
 - The EACWG published their recommendations in June 2017. Recommendation 4-6 addressed fire prevention and is itself composed of six subtasks.
- **EACTB Recommendation 4-6 subtasks:**
 - Produce consistent FAA and EASA guidance on approved burners (kerosene vs. propane/gas)
 - Produce consistent FAA and EASA guidance on ground after landing condition
 - **Produce consistent FAA and EASA guidance on engine combustor burn through and engine mount fireproof-ness**
 - SAE committee to develop industry standards covering remaining gaps
 - FAA to revise AC 20-135 to incorporate content/results of SAE committee report
 - EASA to revise AMC/guidance to incorporate content/results of SAE committee report



Engine combustor case burn through

- **Physical situation: Fuel nozzle/injector breaks loose inside combustor; torching flame is directed toward case and burns through it; torching flame threatens environment surrounding flame.**
- **Relevant rule: 14 CFR 25.903(d)(1) and CS 25.903(d)(1).**
 - No explicit requirement at part 33 or CS-E.
- **Existing guidance: AC 20-135, change 1 provides short, very top level guidance – 1 page, approx.**
- **A draft AC 20-135-2 was prepared in January 2000 which proposed more comprehensive guidance. This was never published for unknown reasons.**



Engine mount fireproofness

- **Relevant rules: 14 CFR 25.865 and CS 25.865**
 - 14 CFR part 33.17 does not have explicit engine mount fireproofness requirements
 - In contrast, CS-E 130(g) contains engine mount fireproofness requirements
- **Guidance: None.**
- **ARAC Loads and Dynamics Harmonization Working Group published their report in 1998 which included a proposed draft AC 25.865-1. An agreement was unable to be reached and the draft AC was never finalized nor published.**



SAE A-22 subgroups F and G

- **SAE A-22 working group was commissioned back in 2017 to generate consensus standards governing fire testing with the long term goal of revising AC 20-135 to reference these standards.**
 - 4 subgroups (Groups A-D) initially created to deal with thermocouple selection, flame calibration, pass/fail criteria, residual burning, panel size, boundary conditions, etc. Work is ongoing.
 - The FAA subsequently requested A-22 leadership in early 2020 to discuss combustor case burnthrough and engine mount fireproofness and develop standards which the FAA can reference in the appropriate AC(s).
 - A-22 agreed to this request and launched subgroups F and G in June 2020 to deal with these fire prevention topics.
 - Preliminary discussion has revealed that fire size needs to be treated before engine mount fireproofness can be discussed; as such, it is added to subgroup G.



Participation

- **Subgroup F**
 - Co-leads: FAA and GE
 - Participants include: EASA, TCCA, ANAC, Boeing, Airbus, Honeywell, Pratt and Whitney, Rolls-Royce, Safran, and Waldron AeroSystems
- **Subgroup G**
 - Co-leads: FAA, Airbus, Honeywell, Boeing
 - Participants: FAA, TCCA, ANAC, Boeing, Bombardier, Collins, GE, STE, Airbus, Lockheed-Martin, Rolls-Royce



Questions?

